AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

1. (Cancelled)

2. (Currently amended) ~~The stage according to claim 1,~~ A 3-axis straight line motion stage comprising:

a bottom plate having a predetermined area and thickness;

an X-axis stage fixed in a reference area of the bottom plate, for moving in the direction of the X-axis, a first X area positioned from the reference area to the direction of the X-axis;

a Y-axis stage, positioned within the first X area and fixed in a second X area, which is located within the first X area for moving in the direction of the Y-axis a second Y area positioned from the second X area to the direction of the Y-axis; and

a Z-axis stage fixed in the second Y area, which is located within the first Y area and supports a predetermined sample for moving the sample in the direction of the Z-axis;

~~wherein~~ the X-axis stage ~~(10) comprises~~ comprising:

a piezoelectric element having a predetermined length, the length being changed in the direction of the Y-axis according to an input voltage[[,]];

and a first X driving part ~~(11-1)~~ and a second X driving part ~~(11-2)~~ connected to both ends of a longitudinal direction of the piezoelectric element ~~(13)~~, respectively, for moving in the X-axis direction ~~the~~ a second X end ~~(16-2)~~ within the first X area ~~(11-1)~~ from a first X end ~~(16-1)~~ within the reference area ~~(RR)~~ in the center of the piezoelectric element ~~(13)~~ according to driving of the piezoelectric element ~~(13)~~,

wherein the X-axis, the Y-axis and the Z-axis indicate axes of rectangular coordinates, respectively.

3. (Currently amended) The stage according to claim [[1]] 2, wherein the first and second X driving parts ~~(11-1, 11-2)~~ comprise[[s]] first and second X amplifying parts ~~(12-1, 12-2)~~ amplifying a displacement generated according to the driving of the piezoelectric element, ~~(13)~~ and moving third and ~~forth~~ fourth X ends ~~(16-3, 16-4)~~ formed ~~in the opponent~~ on a side opposite to side of the first X end ~~(16-1)~~ in the center of the piezoelectric element, in the direction of the X-axis by the amplified displacement,

first and second X-line motion parts ~~(13-1, 13-2)~~ shifted in parallel in the direction of the X-axis by the amplified displacement,

first and second slits ~~(19-1B, 19-1C)~~ connecting the third and fourth X ends ~~(16-3, 16-4)~~ to first ends of the first and second X-line motion parts ~~(13-1, 13-2)~~, respectively, and

a third slit ~~(19-1A)~~ connecting ~~the other~~ a second end ~~opponent~~ opposite to the first end of the first X-line motion part ~~(13-1)~~, which is connected to the third X end, ~~(16-3)~~ to ~~the other~~ a second end ~~opponent~~ opposite to the first end of the second X-line motion part ~~(13-2)~~, which is connected to the fourth X end ~~(16-4)~~.

4. (Currently amended) The stage according to claim 3, wherein the first and second X amplifying parts ~~(12-1, 12-2)~~ comprise[[s]] first and second pressing parts ~~(14-1, 14-2)~~ receiving the displacement of the piezoelectric element, [[an]] intermediate rods formed in the longitudinal direction of the piezoelectric element towards ~~the~~ both sides of the first and second pressing part ~~(14-1, 14-2)~~ in the center of the respective first and second pressing parts ~~(14-1, 14-2)~~, and fourth and fifth slits connecting ~~the first and second pressing parts (14-1, 14-2) to the other ends opponent to the ends of~~ the intermediate rods ~~(15-1)~~ each other, respectively.

5. (Currently amended) The stage according to claim 4, wherein the intermediate rod comprises a post part ~~(15-A)~~ formed to have a predetermined width, and a narrowing part ~~(15-1B)~~ having a thickness relatively thinner than the width of the post part by a semicircular groove ~~(15-1C)~~ having a predetermined radius in both ends of the post part ~~(15-1A)~~.

6. (Currently amended) The stage according to claim 5, wherein the respective first and second X amplifying parts ~~(12-1, 12-2)~~ further comprise[[s]] a hole ~~(18-1)~~ of a predetermined magnitude in the area surrounded by the fourth and fifth slits, the first pressing part ~~(14-1)~~ and the intermediate rod ~~(15-1)~~.

7. (Currently amended) The stage according to claim 6, wherein the first and second X-line motion parts ~~(13-1, 13-2)~~ comprise[[s]] first and second X double springs ~~(13-1B, 13-2B)~~ connected to the third and fourth X ends ~~(16-3, 16-4)~~ through the first and second slits ~~(19-1B, 19-1C)~~, and third and fourth X double springs ~~(13-1A, 13-2A)~~ connected to the first and second X double springs ~~(13-1B, 13-2B)~~ through a pair of slits ~~(19-1D, 19-1E)~~ having a predetermined length and formed in the parallel direction about the X [[ ]]axis, the ends of the third and fourth X double springs ~~(13-1A, 13-2A)~~ being connected to each other through the third slit ~~(19-1A)~~.

8. (Currently amended) The stage according to claim 7, wherein the respective first to fourth X double springs ~~(13-1B, 13-2B, 13-1A, 13-2A)~~ comprise[[s]] two intermediate rods arranged doubly, the respective intermediate rods ~~comprising~~ comprise a post part ~~(13-1C)~~ having a predetermined width, and a narrowing part having a thickness relatively narrower than the width of the post part by a semicircular groove having a predetermined radius in both ends of the post part ~~(15-1A)~~.

9. (Currently amended) The stage according to claim 3, wherein the first and second X-line motion parts ~~(13-1, 13-2)~~ comprise[[s]] first and second X double springs ~~(13-1B, 13-2B)~~ connected to the third and fourth X ends ~~(16-3, 16-4)~~ through the first and second slits ~~(19-1B, 19-1C)~~, and third and fourth X double springs ~~(13-1A, 13-2A)~~ connected to the first and second X double springs ~~(13-1B, 13-2B)~~ through a pair of slits ~~(19-1D, 19-1E)~~ having a predetermined length and formed in the parallel direction about the X [[ ]]axis, the ends of the third and fourth X double springs ~~(13-1A, 13-2A)~~ being connected to each other through the third slit ~~(19-1A)~~.

10. (Currently amended) The stage according to claim 9, wherein the respective first to fourth X double springs ~~(13-1B, 13-2B, 13-1A, 13-2A)~~ comprise[[s]] two intermediate rods arranged doubly, the respective intermediate rods ~~comprising~~ comprise a post part ~~(13-1C)~~ having a predetermined width, and a narrowing part having a thickness relatively narrower than the width of the post part by a semicircular groove having a predetermined radius in both ends of the post part ~~(15-1A)~~.

11. (Currently amended) The stage according to claim 2, wherein the Y-axis stage ~~(20)~~ comprises a piezoelectric element having a predetermined length, the length being changed in the direction of the X-axis according to an input voltage, and a first Y driving part ~~(21-1)~~ and a second Y driving part ~~(21-2)~~ connected to both ends of a longitudinal direction of the piezoelectric element ~~(23)~~, respectively, and fixed to ~~the~~ a first Y end ~~(26)~~ of the second X area ~~(RX2)~~ for moving ~~the~~ a second Y end ~~(26) opponent~~ opposite to the first Y end ~~(25)~~ in the Y-axis direction on the basis of the piezoelectric element ~~(23)~~.

12. (Currently amended) The stage according to claim 11, wherein the Z-axis stage ~~(30)~~ comprises a bottom part ~~(34)~~ having a predetermined area and thickness and ~~fixing~~ fixed within the second Y area ~~(RY2)~~ of the Y-axis stage ~~(20)~~, a Z-line driving part ~~(31)~~ moving in the direction of the Z-axis and formed integrally to the bottom plate ~~(34)~~ in the vertical direction, which is the direction of the Z-axis, from the surface of the bottom plate ~~(34)~~, and a piezoelectric element ~~(33)~~ mounted to have a decreased or increased length in the direction of the Z-axis in ~~the~~ a space ~~(31-1)~~ of a predetermined size, the space being a region to which the bottom part ~~(34)~~ and the Z-line driving part ~~(31)~~ are adjacent and formed in the Z-[[axis]]line driving part ~~(31)~~.

13. (Currently amended) The stage according to claim 2, wherein the Z-axis stage ~~(30)~~ comprises a bottom part ~~(34)~~ having a predetermined area and thickness and ~~fixing~~ fixed within the second Y area ~~(RY2)~~ of the Y-axis stage ~~(20)~~, a Z-line driving part ~~(31)~~ moving in the direction of the Z-axis and formed integrally to the bottom plate ~~(34)~~ in the vertical direction, which is the

direction of the Z-axis, from the surface of the bottom plate ~~(34)~~, and a piezoelectric element ~~(33)~~ mounted to have a decreased or increased length in the direction of the Z-axis in ~~the~~ a space ~~(31-1)~~ of a predetermined size, the space being a region to which the bottom part ~~(34)~~ and the Z-line driving part ~~(31)~~ are adjacent and formed in the Z-[[axis]]line driving part ~~(31)~~.

14. (Currently amended) The stage according to claim [[1]] 2, wherein the Y-axis stage ~~(20)~~ comprises a piezoelectric element having a predetermined length, the length being changed in the direction of the X-axis according to an input voltage, and a first Y driving part ~~(21-1)~~ and a second Y driving part ~~(21-2)~~ connected to both ends of a longitudinal direction of the piezoelectric element ~~(23)~~, respectively, and fixed to ~~the~~ a first Y end ~~(26)~~ of the second X area ~~(RX2)~~ for moving ~~the~~ a second Y end ~~(26) opponent~~ opposite to the first Y end ~~(25)~~ in the Y-axis direction on the basis of the piezoelectric element ~~(23)~~.

15. (Currently amended) The stage according to claim 14, wherein the first and second Y driving parts ~~(21-1, 21-2)~~ comprise[[s]] first and second Y amplifying parts ~~(21-1, 22-2)~~ connected to both ends of a longitudinal direction of the piezoelectric element ~~(23)~~, respectively, for amplifying a displacement generated according to the driving of the piezoelectric element ~~(23)~~ and for moving the second Y end ~~(26)~~ in the direction of the Y-axis by the amplified displacement, and first ends of first and second Y-line motion parts ~~(23-1, 23-2)~~ connected to the first and second Y amplifying parts ~~(22-1, 22-2)~~, respectively, through ~~the~~ first and second slits ~~(27-1, 27-2)~~ traversing a part of the first Y end ~~(26)~~ and shifted in parallel in the direction of the Y-axis by the amplified displacement, ~~the other~~ second ends ~~opponent~~ opposite to the first ends of the first and second Y-line motion parts ~~(23-1, 23-2)~~ connected to the first and second amplifying parts ~~(22-1, 22-2)~~ being connected to each other by ~~the~~ a third slit ~~(27-3)~~.

16. (Currently amended) The stage according to claim 15, wherein the respective first and second Y amplifying parts ~~(22-1, 22-2)~~ comprise[[s]] first and second pressing parts ~~(24-1, 24-2)~~ receiving the displacement of the piezoelectric element 23, and an intermediate rod formed

in both sides of the first and second pressing parts ~~(14-1, 14-2)~~ symmetrically to the X-axis in the center of the respective first and second pressing parts ~~(14-1, 14-2)~~, the intermediate rod ~~(24)~~ comprising a post part having a predetermined width, and a narrowing part having a thickness relatively narrower than the width of the post part formed by a semicircular groove having a predetermined radius in both ends of the post part.

17. (Currently amended) The stage according to claim 16, wherein the first and second [[X]]Y-line motion parts ~~(23-1, 23-2)~~ comprise first and second Y double springs connected to the first and second Y ends through the first and second slits ~~(27-1, 27-2)~~, and third and fourth Y double springs connected to the first and second Y double springs through a pair of slits having a predetermined length and formed in the parallel direction about the Y –axis, the ends of the third and fourth Y double springs being connected to each other through the third slit ~~(27-3)~~.

18. (Currently amended) The stage according to claim [[1]] 2, wherein the Z-axis stage comprises a bottom part ~~(34)~~ having a predetermined area and thickness and ~~fixing~~ fixed within the second Y area ~~(RY2)~~ of the Y-axis stage ~~(20)~~, a Z-line driving part ~~(31)~~ moving in the direction of the Z-axis and formed integrally to the bottom plate ~~(34)~~ in the vertical direction, which is the direction of the Z-axis, from the surface of the bottom plate ~~(34)~~, and a piezoelectric element ~~(33)~~ mounted to have a decreased or increased length in the direction of the Z-axis in ~~the~~ a space ~~(31-1)~~ of a predetermined size, the space being a region to which the bottom part ~~(34)~~ and the Z-line driving part ~~(31)~~ are adjacent and formed in the Z-[[axis]]line driving part ~~(31)~~.

19. (Currently amended) The stage according to claim 18, wherein the Z-line driving part ~~(31)~~ comprises first and second Z-axis motion parts ~~(31-1, 31-2)~~ moving ~~the~~ a first Z end ~~(36)~~ positioned in the direction of the Z-axis from the bottom part ~~(34)~~ to the Z-axis on the basis of the piezoelectric element according to the driving of the piezoelectric element ~~(33)~~, wherein the respective first and second Z-axis motion parts ~~(31-1, 31-1)~~ include[[s]] ~~the~~ first and second Z double springs ~~(31-1A, 31-1B)~~ and ~~the~~ third and fourth Z double springs ~~(31-2A, 31-2B)~~ arranged

in the direction of the Z-axis, the ends of the first and third Z double springs being ~~connection~~ connected through ~~the~~ a fourth slit ~~(35)~~.

20-21. (Cancelled)

22. (Currently amended) ~~The device according to claim 21,~~ A sample test device using a 3-axis straight line motion stage, the device comprising:

a 3-axis straight line motion stage supporting a predetermined sample and shifting the sample independently, precisely and exactly in the direction of the X-axis, the Y-axis or the Z-axis; and

an atom microscope provided with the 3-axis straight-line motion stage for measuring the location of the sample using a laser and for scanning the sample;

the 3-axis straight line motion stage comprising:

a bottom plate having predetermined area and thickness;

an X-axis stage, fixed in a reference area of the bottom plate, for moving in the direction of X-axis a first X area positioned from the reference area to the direction of the X-axis;

a Y-axis stage positioned within the first X area and fixed in a second X area, which is located within the first X area, for moving in the direction of the Y-axis a second Y area positioned from the second X area to the direction of the Y-axis; and

a Z-axis stage fixed in the second Y area, which is located within the first Y area and supports a predetermined sample for moving the sample in the direction of the Z-axis,

~~wherein~~ the Y-axis stage ~~comprises~~ comprising:

a piezoelectric element having a predetermined length, the length being changed in the direction of the X-axis according to an input voltage, and a first Y driving part ~~(21-1)~~ and a second Y driving part ~~(21-2)~~ connected to both ends of a longitudinal direction of the piezoelectric element ~~(23)~~, respectively, and fixed to ~~the~~ a first Y end ~~(26)~~ of the second X area ~~(RX2)~~ for moving ~~the~~ a second Y end ~~(26) opponent~~ opposite to the first Y end ~~(25)~~ in the Y-axis direction on the basis of the piezoelectric element ~~(23)~~.

wherein, the X-axis, the Y-axis and the Z-axis indicate axes of rectangular coordinates, respectively.

23. (Currently amended) The device according to claim 22, wherein the Z-axis stage comprises;

a bottom part ~~(34)~~ having a predetermined area and thickness and ~~fixing~~ fixed within the second Y area ~~(RY2)~~ of the Y-axis stage ~~(20)~~,

a Z-line driving part ~~(31)~~ moving in the direction of the Z-axis and formed integrally to the bottom plate ~~(34)~~ in the vertical direction, which is the direction of the Z-axis, from the surface of the bottom plate ~~(34)~~, and

a piezoelectric element ~~(33)~~ mounted to have a decreased or increased length in the direction of the Z-axis in ~~the~~ a space ~~(31-1)~~ of a predetermined size, the space being a region to which the bottom part ~~(34)~~ and the Z-line driving part ~~(31)~~ are adjacent and formed in the Z-[[axis]]line driving part ~~(31)~~.

24. (Cancelled)